

CLAIMS

1. A method of facilitating the exchange and processing of information in and between a plurality of Blocks (1), each Block comprising an information-providing, information-processing or information-consuming element in an integrated data network, at least one Block having a requirement to receive information from one or more Blocks, the method comprising
- 5 - providing an Information Routing Layer (3) to manage the exchange of information between Blocks and the fulfilment of at least one Consumer Function (33,34,42) from a Block (1) having a requirement to receive information and a capacity to provide an output in response to the receipt of that information; wherein
- 10 - each Block (1) which can provide or process information on the network is registered at the Information Routing Layer (3);
- a unit of information is handled in the Information Routing Layer (3) as a Field (301,303) within a Dataset (51) uniquely identified and associated with the Block first responsible for providing information in such Dataset and information is input to and output from a Block in a Field set;
- 15 - on recognition of a Consumer Function (33,34,42) specifying an input Field set and an output Field set, the Information Routing Layer (3) operates to match the Input Field set requested for the Consumer Function with a Proper Set comprising a corresponding Field set selected from available input or Datasets; and
- 20 - following supply of an input Field set to the Consumer Function, the Information Routing Layer (3) places the Output Field set delivered by the Consumer Function onto a new Dataset.
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2. A method according to Claim 1, in which one or more Blocks (1) has an information processing capability to produce an Output Field set when provided with a specified Input Field set, this capability is recorded in the Information Routing Layer in the form of an Exchange Function (31,32) for each Block with said capability specifying the Input Field set and the Output Field set for each such Block, and the Information Routing Layer is adapted to form an Aggregate Route (A-B-C,A-B-D,A-B-F) using one or more Fields from an available Dataset or Datasets with one or more Exchange Function so as to enable the fulfilment of a specific Consumer Function Input Field set.
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3. A method according to Claim 1 or Claim 2 in which a Function is provided with one or more associated Attribute and the Information Routing Layer utilises the Attribute in determining how to provide or process Input or Output Field sets to or from the said Function.
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4. A method according to Claim 3 in which a Consumer Function specifies a Consumer Function Value as an associated Attribute, and/or an Exchange Function specifies an Exchange Function Cost as an associated Attribute, each said Value and/or Cost being a
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representative measure of a critical resource which is relevant as a determining factor in the operation of the Information Routing Layer, and the Information Routing Layer uses the specified Consumer Function Value and/or Exchange Function Cost(s) to determine whether a particular Consumer Function Input Field set can or should be provided appropriately by possible Exchanges, within the applicable resource constraints.

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5. A method according to Claim 3 in which an Attribute (304) associated with a Function determines whether the Information Routing Layer treats that Function as a Consumer Function or as an Exchange Function.

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6. A method according to any preceding Claim in which a Field in an Output Field set from a Function may be marked to be discarded by the Information Routing Layer.

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7. A method according to any preceding Claim in which an Input Field set or an Output Field set is an empty set or a null set.

8. A method according to any preceding Claim in which a Block intending to provide to the Information Routing Layer, unsolicited, a Field set, all the Fields of which are intended to be made available together on a new Dataset, indicates this intention to the Information Routing Layer by raising a Provider Function having the intended Fields specified in the Provider Function's Output Field set and a null Input Field set.

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9. An Information Router for facilitating the exchange and processing of information in and between a plurality of Blocks, each Block comprising an information-providing, information-processing or information consuming element in an integrated data network, at least one Block having a requirement to receive information from one or more other Blocks, the Information Router utilising one or more computer processor(s) programmed to manage the exchange of information between Blocks and the fulfilment of a specific Consumer Function from a Block having a requirement to receive information and a capacity to provide an output in response to the receipt of that information; whereby each Block which can provide or process information on the network is registered by the Information Router; a unit of information is processed by the Information Router as a Field within a Dataset uniquely identified and associated with the Block first responsible for providing information in such Dataset and information is input to and output from a Block in a Field set; and whereby on recognition of a Consumer Function specifying an input Field set and an output Field set, the Information Router will operate to match the Input Field set requested for the Consumer Function with a Proper Set comprising a corresponding Field set selected from an available Dataset or Datasets and, following supply of the Input Field set to the Consumer Function, to place the Output Field set delivered by the Consumer Function onto a new Dataset.

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10. An Information Router according to Claim 9, for use where one or more Blocks has an information processing capability to produce a specified output Field set when provided with a specified input Field set, and wherein the Information Router is programmed to record such capability in the form of an Exchange Function for each Block with such capability specifying the Input Field Set and the Output Field set for each such Block, and in operation to form an Aggregate Route using one or more Fields from an available Dataset or Datasets with one or more Exchange Function so as to enable the fulfilment of a specific Consumer Function Input Field set.
11. An Information Router according to Claim 9 or Claim 10 programmed to use an Attribute associated with a given Function in determining how to provide or process Input or Output Field sets to or from the said Function.
12. An Information Router according to Claim 11 programmed to use an Attribute identified as a Consumer Function Value when specified in an Consumer Function, and/or an Attribute identified as an Exchange Function Cost when specified in an Exchange Function, each said Value and/or Cost being a representative measure of a critical resource which is relevant as a determining factor in the operation of the Information Router, and wherein, in operation, the Information Router uses the specified Consumer Function Value and/or Exchange Function Cost(s) to determine whether a particular Consumer Function Input Field set can or should be provided appropriately by possible Exchanges, within the applicable constraints.
13. An Information Router according to Claim 11 programmed to use an Attribute associated with a Function to determine whether that Function is to be treated as a Consumer Function or as an Exchange Function.
14. An Information Router according to any of Claims 9 to 13 programmed to recognise that a Field in an Output Field set from a Function is to be discarded by the Information Router.
15. An Information Router according to any of Claims 9 to 14 programmed to accept an Input Field set or an Output Field set which is an empty set or a null set.
16. An Information Router according to any of Claims 9 to 15 programmed to enable a Block intending to provide, unsolicited, a Field set, all the Fields of which are to be made available together by the Information Router on a new Dataset, to indicate this intention by raising a Provider Function having the intended Fields specified in the Provider Function Output Field set and a null Input Field set.
17. A method according to any of Claims 1 to 8 in which the Information Routing Layer is instantiated on request.